REMARKS

The present application stands with independent claims 1 and 5 rejected under 35 U.S.C. §103(a) as being unpatentable over the cited Jones et al. (Jones) patent in view of the cited Cleverly et al. (Cleverly) patent. Claim 1 was also provisionally rejected under the judicially created doctrine of obviousness-type of double patenting as being unpatentable over claim 1 of co-pending Application No. 09/664,646 (now U.S. Patent No. 6,771,688) in view of Jones. The independent claims 1 and 5 have been cancelled and a new independent claim 6 has been presented above. The dependent claims have been amended to be dependent on new claim 6. For the reasons below, new claim 6 is not believed to be obvious over the cited references and is believed to not be subject to a double patenting rejection.

Jones discloses a CDMA demodulator consisting of descrambler, a despreader, a deinterleaver, followed by a decoder. These functions are performed after a signal is detected and time and frequency synchronization are performed. Applicants' invention deals with signal detection before anything that Jones discloses is performed. The problem that applicants' invention solves is initial signal acquisition and timing estimation in the presence of frequency offset due to Doppler effect, fast fading, and a mismatch between the transmitter and receiver in the wireless environment, all of which are particular problems when the mobile terminal is moving rapidly, such as when the user is on a high speed vehicle. Initial signal acquisition is accomplished by detecting in a preamble one of a known sequence.

In order to solve the problem, applicants' method for multipath detection and identification of one of a plurality of known sequences segments the received signal into at least two segments, correlates the samples in each segment with a representative sample, and produces signals for each segment indicative of a match between the correlated signals and expected signal identities. A plurality of different frequency offsets that the received signal may have encountered are

then hypothesized. "[A] plurality of frequency offset compensations" is then provided for processing the correlated input signal for each segment with "a different frequency offset multiplication factor being applied" to signals associated with each segment. Then based on a maximum magnitude of the processed signal for each of the plurality of frequency offsets, the received signal and its associated timing delay are determined.

As noted, Jones CDMA demodulator is not what is disclosed or claimed herein. The RAKE receiver shown in FIG. 16 in Jones comprises channel estimation compensation, followed by combining of multipaths. It does not describe a frequency offset compensation algorithm at all. A RAKE receiver typically follows a multipath detector, which functions the present invention performs. There are other significant differences between applicants' claimed invention and how the Examiner has analogized Jones to them. For one, threshold detecting has been misinterpreted as decoding. The threshold test performed per applicants' claim is performed for the plurality of frequency offsets to determine whether a particular sequence is present or not. Once timing has been determined, synchronization can be achieved. Jones discloses a channel decoder after time synchronization to determine (decode) information bits that were transmitted. Further, in Jones, the Walsh code is used as a channelization code to make the downlink channel orthogonal to each other. In applicants' method, a Walsh/Hadamard sequence is used as the pattern for the known sequence (the preamble pattern), and not as channelization sequence.

For the reasons above, the teaching of Jones are not applicable to applicants' claimed invention. The recitations in new claim 6 "of detecting and identifying one of a plurality of known sequences in a received signal and a frequency offset associated with that signal", which segments the received signal "into at least a first and a second segment", provides "a plurality of frequency offset compensations" where "for each frequency offset compensation a different frequency offset multiplication factor [is] applied" and "coherently summing corresponding signal identity outputs ..... to form for each frequency offset compensation a plurality of summed signal identity outputs," where each

frequency offset corresponds "to a different possible frequency offset that affected the received signal," and which summed signal outputs are then used for comparison with a threshold to detect and identify the received signal and its associated frequency offset are not at all taught or suggested by Jones.

The Examiner has cited Cleverly for teaching of segmenting the received signal. Cleverly, however, describes a signal detector that detects a narrowband signal. In a wideband CDMA system, however, detection cannot be done by a per-tone threshold test.

There is nothing in the combination of the Jones and Cleverly that suggests applicants' invention as claimed by new claim 6. For these same reasons, the double patenting rejection is not applicable to new claim 6.

In view of the foregoing, allowance of the new and amended claims and passage to issue of the subject application is respectfully requested. If the Examiner should feel that the application is not yet in a condition for allowance and that a telephone interview would be useful, he is invited to contact applicants' undersigned attorney at 973, 386-8252.

Respectfully submitted,

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